

Demand Response and Load Management Standards

Historical Perspective

June 5, 2007

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Energy Environment - 1976

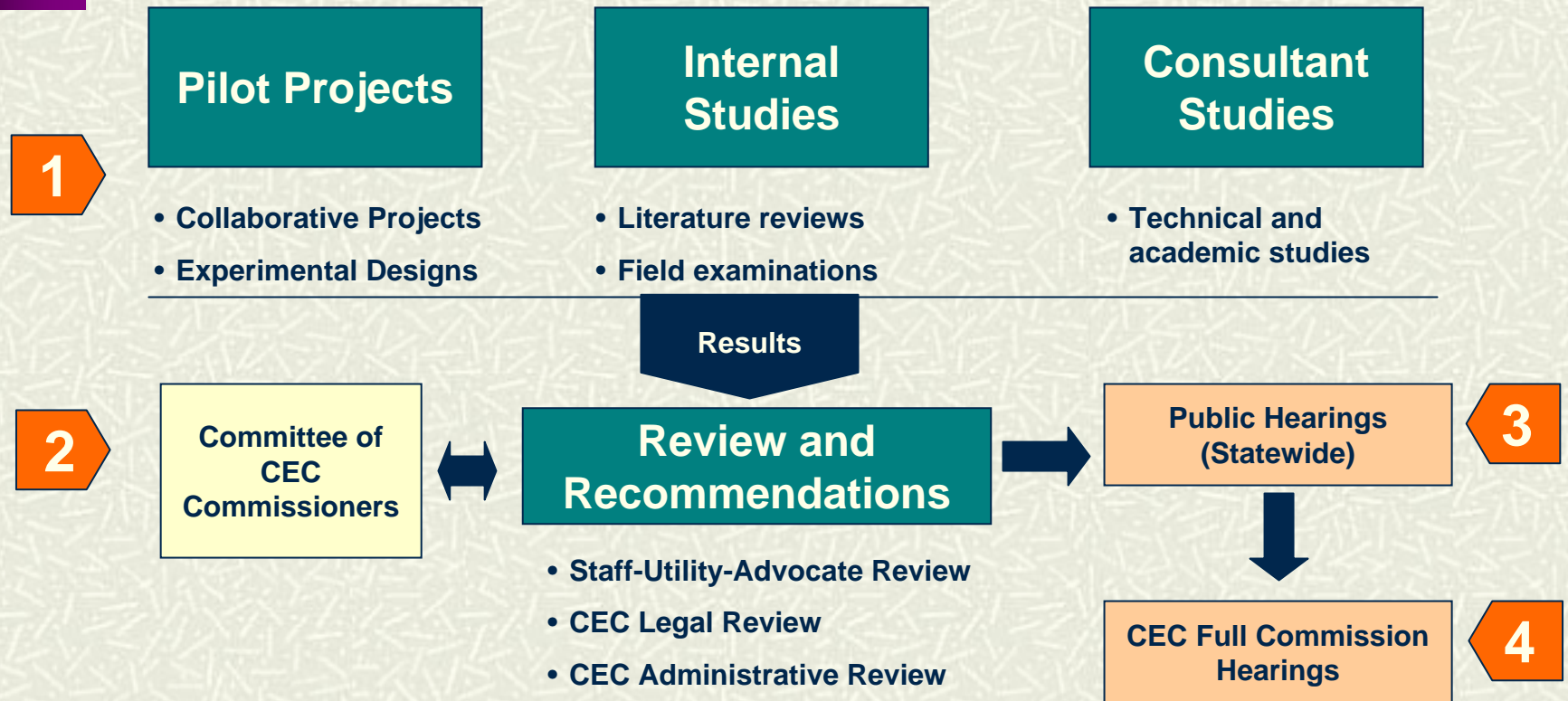
- PURPA not adopted until 1978
- Utility Situation
 - 25+ years of load building
 - Declining block rates
 - Unsophisticated load forecasting
 - Little customer information
- CEC Situation
 - No appliance standards
 - No building standards
 - No efficiency or demand response

Key Utilities

- Pacific Gas & Electric
- Southern California Edison
- San Diego Gas & Electric
- Sacramento Municipal Utility District
- LA Department of Water and Power



Load Management Process



CEC Load Management Targets - Pilots

- ☐ C/I Very Large TOU > 4,000 kW - 2 pilots
- ☐ C/I Very Large Dispatchable TOU > 4,000 kW – 1 pilot
- ☐ C/I Large TOU > 1,000 kW – 3 pilots
- ☐ C/I Medium TOU >500 kW – 3 pilots
- ☐ C/I Small TOU < 500 kW – 3 pilots
- ☐ Residential TOU – 2 pilots
- ☐ Residential TOU w/ load control – 2 pilot
- ☐ C/I AC load control – 3 pilots
- ☐ Residential AC, WH, SPH load control – 5 pilots



CEC Load Management Targets - Studies

- ☐ Agricultural load management – field studies
- ☐ Industrial load management – field / case studies
- ☐ Industrial end-use study
- ☐ Commercial Energy Management
 - Literature reviews
 - Field studies (audits)
 - Hardware evaluations
- ☐ Worldwide Load Management – review / workshop
- ☐ Customer Acceptance – market research / workshop
- ☐ Load Management Hardware – survey / workshop
- ☐ Rate Design – examination of marginal cost pricing
- ☐ Cost Effectiveness – methodology examination



CEC Load Management Standards

“.. the Commission, at the very least, must consider load management standards which involve rate structure adjustments, devices for the control of daily and seasons peak loads, and end-use storage systems.”

“At this time, staff does not offer a standard which involves end-use storage. It has not yet assembled data which might demonstrate the cost effectiveness of storage.”

Source: CEC Staff Report on Load Management Standards, June 5, 1978, page 10.



CEC Load Management Standards

Adopted Standard	Goal / Objective	Issues - Results
1. Residential Appliance Control	Achieve 25% saturation of control switches	<ul style="list-style-type: none"> • Utilities claim maximum achievable 23% • PG&E pilot implementation achieves > 80% • SCE pilot implementation achieves 99%
2. Commercial Energy Conservation Surveys	<ul style="list-style-type: none"> ▪5% coincident peak reduction ▪10% reduction in energy use 	<ul style="list-style-type: none"> ▪Utility surveys achieve < 2% savings ▪PG&E headquarters reduces energy use 30% ▪LBNL, Rand, DOE studies achieve 10-40% ▪DRRC AutoDR achieves 10-30%
3. Load Management Tariffs	Present and propose marginal cost (MC) rates	<ul style="list-style-type: none"> ▪Average embedded cost rates understate MC, provide incorrect price signal ▪Uncertain definition-methodology for MC
4. Swimming Pool Pump	Achieve 80% participation - move swimming pool loads off-peak	<ul style="list-style-type: none"> ▪ Few concerns ▪ Setbacks difficult to maintain due to service and electrical outages.

